

AMENDMENTS TO THE CLAIMS

The claims in this listing will replace all prior versions, and listings, of claims in the application.

LISTING OF CLAIMS

1. (Currently Amended) An image heating apparatus comprising:
~~an annular heat-producing member having an inner peripheral surface and an outer peripheral surface that produce that has a pair of principal surfaces and produces heat through the action of based on a magnetic flux;~~
~~a coil facing the outer peripheral surface that magnetic flux generation section that is located in proximity to a first principal surface of said pair of principal surfaces and generates magnetic flux that acts upon said heat-producing member; and~~
~~a magnetic flux reduction section facing the inner peripheral surface and attached to a rotatable core which is made of a ferromagnetic material and is rotatably arranged inside the annular heat-producing member, said magnetic flux reduction section reducing that is located in proximity to a second principal surface of said pair of principal surfaces and reduces, of the magnetic flux generated by said coil magnetic flux generation section, magnetic flux that acts upon a paper non-passage area of said heat-producing member, wherein the magnetic flux reduction section is displaced between a first position in which the magnetic flux that acts upon the paper non-passage area is reduced and a second position in which the magnetic flux that acts upon the paper non-passage area is not reduced, by rotating said core.~~

2. (Cancelled)

3. (Currently Amended) The image heating apparatus according to claim [[2]] 1,

wherein:

said core has a recess formed in an outer peripheral surface thereof of said core;
and

said magnetic flux reduction section is attached by being inserted in said recess.

4. (Currently Amended) The image heating apparatus according to claim [[2]] 1,

wherein said magnetic flux reduction section is attached to said core so that an outer peripheral surface thereof of said magnetic flux reduction section is located on a circumferential surface the same as an outer peripheral surface of said core.

5. (Currently Amended) The image heating apparatus according to claim [[2]] 1,

wherein said magnetic flux reduction section has a projection formed on a peripheral-direction end of said magnetic flux reduction section thereof.

6. (Currently Amended) The image heating apparatus according to claim [[2]] 1,

wherein said magnetic flux reduction section is displaced to the second said non-facing position at a warm-up time.

7. (Currently Amended) The image heating apparatus according to claim [[2]] 1,

wherein said magnetic flux reduction section is first displaced to the second said non-

facing position and thereafter displaced to the first said facing position when sheets narrower than a maximum-width paper passage range are passed through continuously.

8. (Currently Amended) The image heating apparatus according to claim [[2]] 1, wherein said core has thermal conductivity of a predetermined level or above.

9. (Original) An image forming apparatus that has the image heating apparatus according to claim 1.

10. (Withdrawn) An image heating apparatus comprising:

an induction-heated thin heat-producing member that transfers heat directly or indirectly to a heated medium that moves with an image;

an excitation section that generates magnetic flux and induction-heats said heat-producing member;

a temperature control section that controls said excitation section and makes a temperature of a contact surface that comes into contact with said heated medium a predetermined temperature; and

a heat production adjustment section that is located on an opposite side of said heat-producing member relative to said excitation section, and adjusts heat production distribution of said heat-producing member by adjusting magnetic flux acting upon said heat-producing member;

wherein said heat production adjustment section has an opposed core of ferromagnetic material whose temperature varies according to a temperature of said heat-

producing member and whose Curie point is in a range of -10°C to +100°C relative to a maximum value of said predetermined temperature.

11. (Withdrawn) An image heating apparatus comprising:

an induction-heated thin heat-producing member that transfers heat directly or indirectly to a heated medium that moves with an image;

an excitation section that generates magnetic flux and inductio n-heats said heat-producing member;

a temperature control section that controls said excitation section and makes a temperature of a fixing surface that comes into contact with said heated medium a predetermined temperature; and

a heat production adjustment section that is located on an opposite side of said heat-producing member relative to said excitation section, and adjusts heat production distribution of said heat-producing member by adjusting magnetic flux acting upon said heat-producing member;

wherein said heat production adjustment section has an opposed core of ferromagnetic material whose temperature varies according to a temperature of said heat-producing member and whose Curie point is in a range of 140°C to 250°C.

12. (Withdrawn) The image heating apparatus according to claim 10, wherein said heat production adjustment section comes into contact with said heat-producing member or a member heated by said heat-producing member.

13. (Withdrawn) An image heating apparatus comprising:
- an induction-heated thin heat-producing member that transfers heat directly or indirectly to a heated medium that moves with an image;
 - an excitation section that generates magnetic flux and induction-heats said heat-producing member;
 - a temperature control section that controls said excitation section and makes a temperature of a fixing surface that comes into contact with said heated medium a predetermined temperature; and
 - a heat production adjustment section that is located on an opposite side of said heat-producing member relative to said excitation section, and adjusts heat production distribution of said heat-producing member by adjusting magnetic flux acting upon said heat-producing member;
- wherein said heat production adjustment section has a switching section that performs on/off switching of a suppression coil composed of an electrical conductor that is linked to said magnetic flux.

14. (Withdrawn) The image heating apparatus according to claim 13, wherein an opposed core of high-permeability material that is permeated by magnetic flux linked to said suppression coil is located inside said suppression coil or on an opposite side of said heat-producing member relative to said suppression coil.

15. (Withdrawn) An image heating apparatus comprising:
 - an induction-heated thin, cylindrical heat-producing member that transfers heat directly or indirectly to a heated medium that moves with an image;
 - an excitation section that faces an outer peripheral surface of said heat-producing member, generates magnetic flux, and induction-heats said heat-producing member;
 - a temperature control section that controls said excitation section and makes a temperature of a fixing surface that comes into contact with said heated medium a predetermined temperature; and
 - a heat production adjustment section that is located on an opposite side of said heat-producing member relative to said excitation section, and adjusts heat production distribution of said heat-producing member by adjusting magnetic flux acting upon said heat-producing member;

wherein said heat production adjustment section has a rotatable opposed core of ferromagnetic material whose cross-sectional shape varies in an axial direction of said heat-producing member.
16. (Withdrawn) The image heating apparatus according to claim 15, wherein a distance between said heat-producing member and said opposed core is fixed in an axial direction in at least one part of a circumferential direction of said opposed core.
17. (Withdrawn) The image heating apparatus according to claim 15, wherein heat production distribution whereby intensity of heat production distribution adjusted by said opposed core is reversed by rotation of said opposed core is possible.

18. (Withdrawn) The image heating apparatus according to claim 15, wherein said opposed core is formed by combining a plurality of materials of different permeability in at least one part of an axial direction of said heat-producing member.
19. (Withdrawn) The image heating apparatus according to claim 18, wherein said opposed core is formed by combining at least a ferromagnetic material and a low-permeability electrical conductor.
20. (Withdrawn) The image heating apparatus according to claim 15, wherein a cross-sectional shape of said opposed core varies continuously in an axial direction in at least one part of an axial direction of said heat-producing member.
21. (Withdrawn) An image heating apparatus comprising:
 - an induction-heated thin, cylindrical heat-producing member that transfers heat directly or indirectly to a heated medium that moves with an image;
 - an excitation section that faces an outer peripheral surface of said heat-producing member, generates magnetic flux, and induction-heats said heat-producing member;
 - a temperature control section that controls said excitation section and makes a temperature of a fixing surface that comes into contact with said heated medium a predetermined temperature; and
 - a heat production adjustment section that is located on an opposite side of said heat-producing member relative to said excitation section, and adjusts heat production

distribution of said heat-producing member by adjusting magnetic flux acting upon said heat-producing member;

wherein said heat production adjustment section has a rotatable opposed core which consists of divided ferromagnetic materials and has a cross-sectional shape varying in an axial direction of said heat-producing member.

22. (Withdrawn) The image heating apparatus according to claim 21, wherein said opposed core is formed by combining a plurality of materials of different permeability in at least one part of an axial direction of said heat-producing member.

23. (Withdrawn) The image heating apparatus according to claim 21, wherein said opposed core is formed by combining at least a ferromagnetic material and a low-permeability electrical conductor.

24. (Withdrawn) The image heating apparatus according to claim 21, wherein a cross-sectional shape of said opposed core varies continuously in an axial direction in at least one part of an axial direction of said heat-producing member.

25. (Withdrawn) An image heating apparatus comprising:

an induction-heated thin, cylindrical heat-producing member that transfers heat directly or indirectly to a heated medium that moves with an image;
an excitation section that generates magnetic flux and induction-heats said heat-producing member;

a temperature control section that controls said excitation section and makes a temperature of a fixing surface that comes into contact with said heated medium a predetermined temperature; and

a heat production adjustment section that is located on an opposite side of said heat-producing member relative to said excitation section, and adjusts heat production distribution of said heat-producing member by adjusting magnetic flux acting upon said heat-producing member;

wherein said heat production adjustment section has a movable magnetic flux suppression member of low-resistivity material.

26. (Withdrawn) The image heating apparatus according to claim 25, wherein in said heat production adjustment section said magnetic flux suppression member is attached to an opposed core of ferromagnetic material.

27. (Withdrawn) An image heating apparatus comprising:

an induction-heated thin heat-producing member that transfers heat directly or indirectly to a heated medium that moves with an image;
an excitation section that generates magnetic flux and induction-heats said heat-producing member;

a temperature control section that controls said excitation section and makes a temperature of a contact surface that comes into contact with said heated medium a predetermined temperature; and

a heat production adjustment section that is located on an opposite side of said heat-producing member relative to said excitation section, and adjusts heat production distribution of said heat-producing member by adjusting magnetic flux acting upon said heat-producing member;

wherein said heat production adjustment section has an opposed core of ferromagnetic material, and a Curie point of said opposed core is set higher than a temperature of said opposed core in a paper passage area and lower than a temperature of said opposed core in a paper non-passage area.

28. (Withdrawn) An image heating apparatus comprising:

an induction-heated thin heat-producing member that transfers heat directly or indirectly to a heated medium that moves with an image;

an excitation section that generates magnetic flux and induction-heats said heat-producing member;

a temperature control section that controls said excitation section and makes a temperature of a contact surface that comes into contact with said heated medium a predetermined temperature; and

an opposed core of ferromagnetic material that is located on an opposite side of said heat-producing member relative to said excitation section, and adjusts heat production distribution of said heat-producing member by adjusting magnetic flux acting upon said heat-producing member;

wherein a distance between said heat-producing member and said opposed core is set constant in an area facing said exciting section.

29. (Withdrawn) An image heating apparatus comprising:

an induction-heated thin heat-producing member that transfers heat directly or

indirectly to a heated medium that moves with an image;

an excitation section that generates magnetic flux and induction-heats said heat-producing member;

a temperature control section that controls said excitation section and makes a temperature of a contact surface that comes into contact with said heated medium a predetermined temperature; and

an opposed core of ferromagnetic material that is located on an opposite side of said heat-producing member relative to said excitation section, and adjusts heat production distribution of said heat-producing member by adjusting magnetic flux acting upon said heat-producing member;

wherein a distance between said heat-producing member and said opposed core in a paper non-passage area is set greater than a distance between said heat-producing member and said opposed core in a paper passage area.

30. (Withdrawn) An image forming apparatus comprising:

the image heating apparatus of claim 10; and

a temperature sensor that measures a temperature of a paper non-passage area of said heat-producing member;

wherein a heat production adjustment section adjusts heat production distribution of said heat-producing member based on a signal from said temperature sensor.

31. (New) An image heating apparatus according to claim 1, wherein said magnetic flux reduction section covers a partial area of an outer peripheral surface of said core.